



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/741,597	11/01/96	WIESMAN	FM-147J

IANDIORIO & TESKA
260 BEAR HILL ROAD
WALTHAM MA 02154

LM32/1224

EXAMINER

WOODS, D

ART UNIT PAPER NUMBER

2736

DATE MAILED: 12/24/97

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

TELETYPE

Office Action Summary

Application No.
08/741,597

Applicant(s)
Richard M. Wiesman

Examiner
Woods, Davetta

Group Art Unit
2736



- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 1-37 is/are pending in the application.
- Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-37 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of References Cited, PTO-892
- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2
- ☐ Interview Summary, PTO-413
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2736

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-9, 11-17, 19-29, and 31-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Abraham. (US Pat. 5,559,377)

In reference to claim 1, Abraham discloses 1) the claimed means for generating communication signals at a first location for transmission on a powerline, which is met by transmitter 16, 24 useful in the power-line communication for data signals over long distances (col. 14 lines 18-41), 2) the claimed means for reactively coupling the communication signals to the powerline, which is met by the transmitter means generally comprises a driver 62 which is connected to the coupling means 14, 22 (col. 14 lines 18-41), and 3) the claimed means for receiving

Serial Number: 08/741597

Art Unit: 2736

the communication signals at a second location, which is met by each house **119** receiving electric power via modem **121** and air coil transmitter and receiver coupler circuit **123** in accordance with the present invention coupled to the electricity meter **125** (col. 15 lines 60-67 and col. 16 lines 1-19).

In reference to claim 2, Abraham discloses the claimed means for generating includes a first communications device, which is met by transmitter **16, 24** useful in the power-line communication of data signals over long distances (col. 14 lines 19-41).

In reference to claim 3, Abraham discloses the claimed a means for reactively coupling includes means for inductively coupling the communication signals to the powerline, which is met by magnetic coil **64** (col. 14 lines 18-29).

In reference to claim 4, Abraham discloses the claimed means for inductively coupling includes a communications core element disposed about the powerline and a plurality of windings disposed about the communications core element for

Art Unit: 2736

coupling the communication signals to the powerline, which is met by the phase shift linear transformer of the present invention involves a dielectric core coupler which uses a dielectric core coupler which uses a dielectric material disposed between the primary and secondary windings (col. 8 lines 46-61).

In reference to claim 5, Abraham discloses the claimed means for reactively coupling includes a means for capacitively coupling the communication signals to the powerline, which is met by the capacitor networks connected to the air-core transformers are capacitor networks **34, 42** create equivalent capacitances C_{eq1} and C_{eq2} for transmission and reception (col. 8 lines 16-28).

In reference to claim 6, this claim reads upon claim 4.

In reference to claim 7, Abraham discloses the claimed dielectric is air, which is met by Fig. 26 shows a powerline communications system for matching the characteristic impedance of an electrical line using an air-core (or dielectric) coupler

Serial Number: 08/741597

Art Unit: 2736

(or transformer) which is capacitively and inductively coupled to the electrical line (col. 11 lines 12-20).

In reference to claim 8, Abraham discloses the claimed inner and outer spaced plates are coaxially disposed about the a.c. powerline, which is met by primary winding **38** and a smaller secondary winding **40** situated coaxially within the primary winding (col. 8 lines 23-42).

In references to claim 9, Abraham discloses the claimed n additional plates electrically connected to the inner coaxial plate to reduce noise, which is met by an air-core transformer comprising primary and secondary windings function as a phase shift linear coupler, which resistively matches the characteristic impedance of the line and reduces noise at bandwidth (col. 4 lines 48-56 and col. 10 lines 58-67).

In reference to claim 11, Abraham discloses the claimed means for reactively coupling includes an inductor, which is met by coupling **14**, **22** include a pair of serial LC circuits in which novel air-core transformers for both transmission and

Art Unit: 2736

reception which serve as the inductive (L) component of the respective LC circuits (col. 7 lines 1-14).

In reference to claim 12, Abraham discloses the claimed each house **119** receiving electric power via modem **121** and air coil transmitter and receiver coupler circuit **123** in accordance with the present invention coupled to the electricity meter **125** (col. 15 lines 60-67 and col. 16 lines 1-19).

In reference to claim 13 and 19, this claim reads upon claim 5.

In reference to claim 14, this claim reads upon claim 6.

In reference to claim 15, this claim reads upon claim 7.

In reference to claim 16, this claim reads upon claim 8.

In reference to claim 17, this claim reads upon claim 9.

Art Unit: 2736

In reference to claim 20, this claim reads upon claim 4.

In reference to claim 21, Abraham discloses the claimed means for extracting from the powerline the communication signals transmitted from the second location, which is met by the central computer 139 issuing an addressable command which is transmitted via a master modem 141 and coupler 137 to the substation over power or conventional phone lines 138, the command is transmitted through the home couplers 123 and modem 121, the meter reading is recorded, transmitted by the home modem 121 through couplers 123, through distribution transformer 126, over power line 129, the couplings include a pair of serial LC circuits in which novel air-core transformers for both transmission and reception which serve as the inductive (L) component of the respective LC circuits (col. 16 lines 21-47, and col. 7 lines 1-14).

In reference to claim 22, Abraham discloses the claimed means for extracting includes the means for reactively coupling from the powerline the communication signals transmitted from the second location, which is met by a meter reading is

Art Unit: 2736.

recorded, transmitted by the home modem **121** through couplers **123**, through distribution transformer **126**, over powerline **129** to the appropriate substation coupler **135** (col. 16 lines 32-47).

In reference to claim 23, this claim reads upon claim 22.

In reference to claim 24, Abraham discloses the claimed means for inductively coupling includes a communications core element disposed about the powerline and a plurality of windings disposed about the communications core element, which is met by the phase shift linear transformer of the present invention involves a dielectric core coupler which uses a dielectric core coupler which uses a dielectric material disposed between the primary and secondary windings (col. 8 lines 46-61).

In reference to claim 25, Abraham discloses the claimed means for reactively coupling includes means for capacitively coupling from the powerline the communication signals transmitted from the second location, which is met by the

Art Unit: 2736

coupling means **14, 22** include a pair of serial LC circuits which are coupled to the pair of power lines (col. 7 lines 1-14), the capacitor networks connected to the air-core transformers are capacitor networks **34, 42** create equivalent capacitances C_{eq1} and C_{eq2} for transmission and reception (col. 8 lines 16-28).

In reference to claim 26, Abraham discloses the claimed means for capacitively coupling includes a capacitor having inner and outer spaced plates located proximate the powerline and a dielectric disposed between the plates, which is met by the phase shift linear transformer of the present invention involves a dielectric core coupler which uses a dielectric core coupler which uses a dielectric material disposed between the primary and secondary windings (col. 8 lines 46-61).

In reference to claim 27, this claim reads upon claim 7.

In reference to claim 28, this claim reads upon claim 8.

In reference to claim 29, this claim reads upon claim 9.

Serial Number: 08/741597

Art Unit: 2736

In reference to claim 31, Abraham discloses the claimed means for encoding the communication signals, which is met by central computer **139** which will issue an addressable command which is transmitted via a master modem **141** (col. 16 lines 33-47).

In reference to claim 32, Abraham discloses the claimed means for inductively coupling further including driver means for providing low voltage, high current pulses of the communication signals to the plurality of windings to inductively couple the pulses to the powerline, which is met by providing power line communications in which the aircore in the coupling transformer gives negligible pulse dispersion, the air coil comprising of a primary winding **38** and a smaller secondary winding **40**, the current is maximized by creating a band pass filter at the carrier frequency FA, and the coupling means **14, 22** are suitable for communication in association with wide range of power-line voltages which can be used for utilizing high and low voltage through power line transformers (col. 4 lines 16-24, col. 10 lines 1-11, and col. 11 lines 62-67).

Art Unit: 2736

In reference to claim 33, Abraham discloses the claimed storage device proximate the first location, which is met by when the utility desires to make a meter reading, the central computer **139** will issue an addressable command which is transmitted via a master modem **141** and coupler **137** (col. 16 lines 33-47).

In reference to claim 34, Abraham discloses the claimed means for transmitting the communications signals to the storage device, which is met by substation **131** and computer **139** will communicate over the power or phone line (col. 16 lines 20-32).

In reference to claim 35, Abraham discloses 1)the claimed means for generating communication signals for transmission on a powerline, which is met by transmitter **16, 24** useful in the power-line communication for data signals over long distances (col. 14 lines 18-41), and 2)the claimed means for reactively coupling the communication signals to the powerline, which is met by the transmitter means generally comprises a driver **62** which is connected to the coupling means **14, 22** (col. 14 lines 18-41).

Art Unit: 2736

In reference to claim 36, Abraham discloses 1)the claimed means for receiving the communication signals transmitted over the powerline, which is met by which is met by each house **119** receiving electric power via modem **121** and air coil transmitter and receiver coupler circuit **123** in accordance with the present invention coupled to the electricity meter **125** (col. 15 lines 60-67 and col. 16 lines 1-19), and 2)the claimed a means for reactively coupling the communication signals to the receiver, which is met by the command is transmitted through the home couplers **123** and modem **121** (col. 16 lines 32-47).

In reference to claim 37, Abraham discloses 1)the claimed sensor for sensing a condition of a powerline, which is met by local substation **131** (FIG. 22), 2)the claimed base station remote from the sensor, which is met by house **119** receiving electric power from utility having a modem **121** (col. 16 lines 3-19), 3)the claimed means for reactively coupling a signal from the sensor onto the powerline for transmission on the remote base station, which is met by receiver coupler circuit **123** coupled to the electricity meter **125** (col. 16 lines 3-19 and FIG. 22), and 4)the claimed means for reactively coupling the signal transmitted on the powerline from

Art Unit: 2736

he powerline to the remote base station, reactively coupling a signal generated by the base station onto the powerline, and reactively coupling the signal on the powerline from the base station to the sensor, which is met by a meter reading is recorded, transmitted by the home modem **121** through couplers **123**, through distribution transformer **126**, over powerline **129** to the appropriate substation coupler **135** (col. 16 lines 32-47).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10, 18, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham.

Art Unit: 2736

In reference to claim 10, although Abraham does not specifically disclose the claimed n additional plates each having a surface area approximately $(1/n)$ of the surface area of the outer plate, he does disclose of the receiver air coil comprising a phase shift linear transformer having a primary winding **46** with a first diameter **2R** **47** and a secondary coaxial winding **48** having a second diameter **2r** **49**. The ration can be altered or modified, such a change requires a resultant alternation in the size of the air gap, i.e. the relative ratio of **2R** and **2r** (col. 9 lines 58-67 and col. 10 lines 1-34). Since Abraham discloses that the diameter may change and vary accordingly, it would have been obvious to one skilled in the art to choose any surface area desired to create the needed frequency for sending information about the powerline to a second location.

In reference to claims 18 and 30, these claims read upon claim 10.

Serial Number: 08/741597

Page 3 ¹⁵

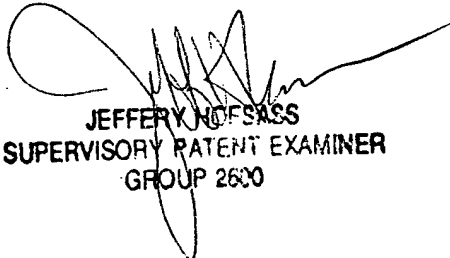
Art Unit: 2736

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure as follows. Kriigel et al. (US Pat. 4,383,243), Fiorina et al. (US Pat. 5,477,091), and Brown (US pat. 5,684,450), which disclose of telecommunication over powerlines.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davetta C. Woods whose telephone number is (703)306-2761 and fax number is (703)308-9051).

If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor Jeff Hofsass can be reached at (703)305-4717.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)305-8576.


JEFFERY HOFSASS
SUPERVISORY PATENT EXAMINER
GROUP 2600

D. Woods

December 11, 1997